PROGRESS

OF

MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF
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The Value of the Fermentation Test for Sugar in the Urine.—H. A. Christian (*Boston Med. and Surg. Jour.*, 1907, clvii, 178) discusses the fermentation specific gravity test for quantitative sugar estimations in diabetic urine. Roberts in 1861 described a method of determining the presence of glucose in diabetic urine by means of the decrease in its specific gravity following the action of yeast. In comparing his results with the other methods in vogue at this time he was convinced of their accuracy. Of late this method has been neglected for other quantitative tests, such as titration with some form of copper sulphate, polariscopic examinations, and fermentation methods. The fermentation test has been compared with Fehling's and the polariscopic methods during the last two years at the Massachusetts General Hospital, and the results, graphically charted, show how closely the readings of the three methods agree. The procedure is as follows: Take the speecific gravity of the urine at the room temperature; add a small bit of commercial yeast and place in a warm spot such as an incubator at 37° C., or in a heated room near a stove or radiator. When the bubbles of gas cease to appear, the urine should be tested with Fehling's or Nylander's solution, a negative result showing that the fermentation is at an end (usually twelve to thirteen hours). The specimen is then allowed to return in the room to the temperature of the previous specific gravity determination, and the specific gravity is redetermined. The difference between these two readings multiplied by 0.23 gives the percentage of fermenting substance expressed in terms of glucose. Filtering the urine before the second specific gravity determination gave no appreciable difference. Ordinary good commercial specific gravity bulbs were used and their results compared with more accurate ones; calculating the necessary allowance for temperature changes, the differences between the two were very slight. The same bulb, however, should be used for each determination of specific gravity, as there are some differences between the bulbs themselves. The specimen of urine should be approximately at the same temperature at each reading, or specimens with and without yeast may be kept side by side for controls and compared as regards their specific gravity. Christian says that observing these few precautions, results as accurate as with the other methods may be obtained, while its simplicity and cheapness should recommend it to more general use.

The Presence of Typhoid Bacilli in the Lice of Patients Suffering from Typhoid Fever.—Abe (from the clinic of Professor Matsushiti in Kioto, *Münch. med. Woch.*, 1907, liv, 1924) calls attention to the influence of parasitic insects in the spread of various infectious diseases. It is a well-known fact that the mosquito is a direct transmitter of malaria; flies often infect food with the bacilli of cholera and dysentery. Typhoid bacilli, as is well known, are present in the circulating blood in the majority of instances of typhoid fever. It is, therefore, easily conceivable that the various human parasites—lice, fleas, and mosquitoes—when they bite human beings affected with typhoid fever, contain the parasites. Pflügge and others have long been under the impression that such parasites might, under circumstances, transfer the infection. Tsujitani and Herzog have each cultivated the bacilli of plague with fleas which have bitten mice.

Abe collected lice and fleas from individuals infected with typhoid fever, soaked them for several minutes in a sterilized test tube in 0.1 per cent. corrosive sublimate solution and then, after having thoroughly washed them with sterile water, ground them up in a sterile mortar. This powder was inoculated under the skin of a white mouse and onto the culture media of Drigalski, Conradi, and Endo. The test tube which was used for the collection of the parasites was filled with 10 cm. of bouillon and placed for twenty-four hours in a thermostat at 37°. With this bouillon smear cultures were also made upon the above-mentioned typhoid media. The bacteria which grew from the typhoid-like colonies and in the internal organs of the animals in whom the injections were made were carefully tested by all modern methods. The results showed that the lice from the body and clothes of typhoid patients contained typhoid bacilli in three out of four cases; while fleas obtained from the nurses of typhoid patients in two instances failed to show bacilli. This latter result may depend upon the fact that but few fleas were obtained. The author concludes that the skin parasites of human beings "play, probably, an important role in the spread of the contagious diseases, especially in typhoid fever." [But the discovery that fleas and lice which have bitten typhoid fever patients contain typhoid bacilli is by no means proof that they are capable of conveying the disease by subsequent feeding upon a healthy individual.—W. S. T.]

Observations on Metabolism in Exophthalmic Goitre.—Scordo and Franchini (*Il Policlinico*, 1907, xiv, 285) report some studies made in Grocco's clinic on the metabolism in exophthalmic goitre. Their observations lead them to the conclusion which has been reached by many others, that emaciation with a relative loss of fat and albumin is by no means the absolute rule in this disease, nor is it dependent upon